Open-File Report Release

Geologic Maps of the Northeastern Part of the Portola 30' x 60' Quadrangle, Lassen, Plumas and Sierra Counties, California *– by T.L.T. Grose, 5 plates, map scale 1:62,500,*
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OFR 2000-24 ***Geologic Map of the Sierraville 15' Quadrangle, Sierra and Plumas Counties, California*** *– by T.L.T. Grose, 1 plate, map scale 1:62,500.*

OFR 2000-25 ***Geologic Map of the Loyalton 15' Quadrangle, Lassen, Plumas and Sierra Counties, California*** *– by T.L.T. Grose, 1 plate, map scale 1:62,500.*

SUMMARY: The area covered by this geologic mapping lies mainly within the Sierra Nevada geomorphic province but includes part of the Basin and Range province of northeastern California. The mapping encompasses approximately 1,150 square miles of southernmost Lassen County, southeastern Plumas County and eastern Sierra County. These maps portray the general geology of the area and provide basic geologic information on the age, distribution, and description of the various rock types, location of faults and other geologic structures.

The area is underlain primarily by Neogene volcanic rocks that were deposited on an older basement of Cretaceous granitic rocks and pre-Cretaceous metavolcanic and metasedimentary rocks. The most abundant rock types in the map area are Miocene and Pliocene volcanic rocks of basaltic to rhyolitic composition with minor sedimentary interbeds. These rocks occur as flow breccias, flows, various pyroclastic layers, and local vent facies. Though much of the volcanic rock is derived from local centers, distal sources also contribute to the volcanic accumulation. Local sources include the eroded remnants of the 10-million-year old Dixie Mountain volcano, the mid-Miocene, Loyalton volcano and the Antelope Valley volcanic center. The central high plateau of the Bald Mountain Range has several small local vents. The Basin and Range province occupies the eastern part of the map area where the rocks consist of a thick, tilted sequence of conglomerate, sandstone, and lake beds of Pliocene age. The youngest rocks in the map area include Quaternary alluvial, fluvial, and lacustrine sediments that occupy low-lying areas, along the Middle Fork of the Feather River and in Grizzly, Sierra, and both Upper and Lower Long valleys. Glacial morainal and fluvial deposits are found in the western part of the mapped area.

Geologic structures in the basement rocks involve northwest trending, steeply dipping beds that are cut by thrust faults. The main structural feature is the northwest trending Mohawk Valley Fault Zone, which displays offsets in a right-lateral sense as well as down-to-the-west displacements. It probably cuts late Quaternary lake beds in Sierra Valley. Another significant structure is the northwest trending Grizzly Valley Fault Zone, which displays small down-to-the-west displacement. Two major and quite different faults separate the Sierra Nevada and Basin and Range provinces in the map area. The Honey Lake Fault Zone, a northwest-trending right-lateral structural feature, is in the northeastern corner of the map. The Upper Long Valley Fault Zone, found along the eastern side of the area, trends northeast to north-south and displays down-to-the-east normal displacement. The northeast end of the seismically active Dog Valley Fault extends into the southeast corner of the map area.

These maps were digitized by R.R. Moar, G.J. Saucedo and J.D. Little.

AVAILABILITY: The Open-File reports listed above are available for reference at the Sacramento, San Francisco and Los Angeles offices. They can be purchased: 1) by phone using VISA, MasterCard or American Express, 2) by mail with check or money order enclosed, or 3) over-the-counter at the San Francisco and Sacramento offices. Click here for mail order form.
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